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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,218	03/31/2006	Kazunori Kagawa	07043.0051	7920

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WASHINGTON, DC 20001-4413

EXAMINER
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LIU, HARRY K

ART UNIT	PAPER NUMBER
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3662

MAIL DATE	DELIVERY MODE
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02/06/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/574,218	<b>Applicant(s)</b> KAGAWA ET AL.	
	<b>Examiner</b> HARRY LIU	<b>Art Unit</b> 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 18-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-25 and 27-34 is/are rejected.
- 7) ☒ Claim(s) 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☒ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/31/2006, 05/16/2007</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

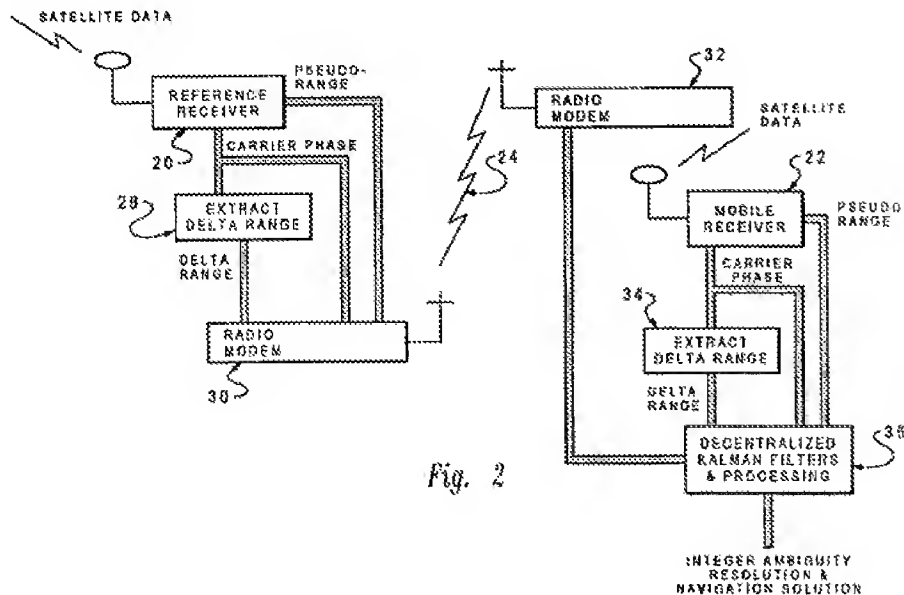
2. Claims 18, 21-22, 27-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babu (5451964).

Regarding claims 18, 21-22, 30-34, Babu discloses a carrier phase GPS positioning device, comprising:

a first integer ambiguity estimation unit that combines a plurality of first carrier phase accumulation data in a first duration extracted from data received from a satellite by a reference station at a fixed position (Abstract);

with one or more second carrier phase accumulation data received from the satellite by a mobile station in a second duration and estimates an integer ambiguity included in the second carrier phase accumulation data (Abstract & FIG. 2);

a positioning unit that determines the position of the mobile station using the integer ambiguity estimated by the first integer ambiguity estimation unit (see article 36 in FIG. 2 below).



Babu fails to specifically disclose that the second duration is shorter than the first duration with number of time equals to one. However, it is known in the art that reference station at fixed position are used to collect long term satellite information for providing to a mobile for improving first fix time and GPS receiver gets update information every one epoch (second). It would have been obvious to set the second duration at one epoch which is shorter than the first duration in order to achieve fast acquisition.

Regarding claims 27-29, Babu as applied to claim 18 rejection above, discloses all claim limitations except for claimed features. However, it is known that cellular technology is commonly used in combination with GPS system by using existing base station for aiding GPS device. A base station is generally selected at high ground elevation with relatively good satellite visibility which is able to receive more satellites

even at lower reception strength. It would have been obvious to modify Babu with cellular system in order to enhance the accuracy of GPS positioning.

3. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Claims 18, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babu (5451964) in view of Fukuda (2003/0216864).

Regarding claims 24-25, Babu, as applied to claim 21 rejection above, discloses all claim limitations except for disclosing movement quantity detection unit or third integer ambiguity estimation unit. However, Fukuda teaches use of inertial measurement unit (paragraph 0002) when satellite is interrupted (paragraph 0005 & 0006). An inertial measuring unit is known installed on a vehicle connected with wheel speed sensor and rotational speed. It would have been obvious to modify Babu with Fukuda by incorporating IMU in order to keep accurate position while satellite is not available.

4. Claims 19-20, 23, are rejected under 35 U.S.C. 103(a) as being unpatentable over Babu (5451964) in view of Toyooka (2002/0169545).

Regarding claims 19-20, 23, Babu, as applied to claim 18 rejection above, discloses all claim limitations except for disclosing abnormal values, interrupted satellite data are to be excluded from the carrier phase accumulation data or determines mobile position using data measured on the mobile side only. However, Toyooka teaches reset of positioning information if satellite is interrupted and using current measured position as the mobile position (paragraph 0006 & 0007, Abstract). It would have been obvious

to modify Babu with Toyooka by incorporating this reset process and uses measuring data as current position in order to rule out bad data.

### ***Allowable Subject Matter***

5. Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: The prior art does not disclose or make obvious when a slip ratio greater than a predetermined value is detected by wheel speed sensor, the position will be based on first estimation unit until the third integer ambiguity estimation is estimates or re-re—estimates the integer ambiguity.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Liu whose telephone number is 571-270-1338. The examiner can normally be reached on Monday -Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, please **leave a voice message** with application serial number and nature of call, a response within 24 hours can be expected during regular business days. Also, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-270-2338.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. L./

Examiner, Art Unit 3662

Harry Liu  
Examiner  
Art Unit 3662  
February 6, 2008

/Thomas H. Tarcza/

Supervisory Patent Examiner, Art Unit 3662

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